1.0 INTRODUCTION

This section begins with the history of northern pike (pike) (Section 1.1), and then presents project objectives and purpose (Section 1.2). Section 1.3 discusses project alternatives considered in this Environmental Impact Report/Environmental Impact Statement (EIR/EIS), followed by an overview of the decision framework (Section 1.4) and authority for the project (Section 1.5). Section 1.6 summarizes public involvement and public scoping. A summary of environmental issues addressed in this EIR/EIS is presented in Section 1.7, followed by an overview of related and cumulative projects (Section 1.8). The section ends with a review of the document structure and the scope of this environmental impact analysis (Section 1.9).

1.1 History and Background

This joint EIR/EIS was prepared by the California Department of Fish and Game (DFG) and the U.S. Forest Service (USFS) for the proposed Lake Davis Pike Eradication Project (Proposed Project). Pike (and all members of the Family *Esocidae*) are restricted in California. It is unlawful to import, transport, or possess live restricted animals listed in Section 671 of Title 14 of the California Code of Regulations (CCR), including pike, except under permit issued by the DFG. Pike have been designated "detrimental" by the state and are restricted because they have been found to pose a threat to native wildlife, the agriculture interests of the state or to public health or safety under Section 671, subdivisions (b) and (c)(5)(Q) of Title 14 of the CCR. The Legislature has declared the protection and conservation of fish and wildlife resources to be of utmost public interest. Many sections of the California Fish and Game Code (FGC) provide for the protection, conservation, and management of California fisheries and other aquatic resources, including but not limited to the following: 1600 *et seq.*, 1700, 2050 *et seq.*, 2118, 2119, 5501, and 15500 *et seq.* and associated regulations in Title 14 of the CCR such as 5.51, 236, 238, 238.5, and 671. In some instances, the DFG uses chemicals (piscicides) to manage fisheries in California. This project is designed to help protect the fishery and other aquatic resources of Lake Davis and the state by eradicating pike from Lake Davis and its tributaries.

Pike were illegally introduced into Frenchman Lake, near Lake Davis, in the late 1980s and were first observed there in 1988. These fish subsequently spread into the Sierra Valley at the headwaters of the Middle Fork Feather River. Pike were successfully eradicated from these areas in 1991 and 1992 and remain absent there at this time. They were first observed in Lake Davis in 1994.

As a result of the 1994 discovery of pike in Lake Davis, the DFG implemented an eradication project in 1997. The DFG prepared an EIR to evaluate and select appropriate management actions (DFG 1997) for that project. In October 1997, the DFG treated Lake Davis with rotenone. Two reports were prepared after the 1997 treatment concerning (1) the chemical residues associated with the treatment (Siepmann and Finlayson 1999), and (2) control, containment, and neutralization (Lee 2000).

Pike were rediscovered in Lake Davis in 1999. These pike either survived the 1997 treatment or were reintroduced into the reservoir. Genetic studies indicate that the current population is descended from the initial population. However, these studies are inconclusive as to whether the current population is from offspring that survived the 1997 treatment in the reservoir and

surrounding waters or were from fish that were removed from Lake Davis prior to the treatment and then reintroduced to the reservoir after the 1997 treatment.

Following the rediscovery of pike, a group of community members, including private citizens and elected city and county officials, formed the Lake Davis Steering Committee. Representatives from State and Federal agencies participate in the meetings to share information, answer questions, and address issues relating to pike in Lake Davis. This group developed a plan titled "Managing Northern Pike at Lake Davis, A Plan for Y2000," known as the *Y2000 Plan*, which outlined a series of measures to reduce the pike population. Since 2000, many of these measures have been used to try to control and contain the pike population within the reservoir. In spite of these intensive efforts, data indicate that the pike population continues to expand.

In December 2003, the Lake Davis Steering Committee sent a letter to Secretary for Resources Mike Chrisman, requesting that the DFG investigate methods to rid Lake Davis of the pike. Secretary Chrisman responded by recognizing the need for the DFG to investigate safe and effective methods of ridding the state of pike. He also acknowledged that cooperation with the local community, protection of public health, and consideration of economic issues are important to any decision to effectively deal with the pike. In May of 2004, the DFG compiled a list of eradication options which had been suggested by various persons and/or agencies. An evaluation of the list indicated that the use of formulated rotenone or a combination of formulated rotenone and rotenone powder combined with a significant drawdown of Lake Davis could be a feasible, effective, and safe method for eradicating the pike. It also recommends that any such project, if proposed by the DFG, should be thoroughly evaluated pursuant to applicable environmental laws. It was determined that continuing the current "Control and Containment" program was not a viable method for eradication.

1.1.1 Northern Pike Biology

Pike are native to parts of North America, Europe, and Asia between 41 and 54 degrees North latitude. They are top predators and have large mouths and torpedo shaped bodies that make them ideally suited as lie-in-wait predators. They can take prey half the size of their own body length. Their typical prey is fish. However, they are opportunistic and will feed on whatever is available, from macroinvertebrates to frogs, ducks, or small mammals. Pike as small as 1 inch (25 mm) will eat other fish. Fish are their primary food once pike reach about 8 inches (20 cm) in length.

Pike can survive a broad spectrum of environmental conditions. They are tolerant of a wide range of temperature (spawning 39.2°F to 66.2°F (4°C to 19°C), rearing 32°F to 86°F (0°C to 30°C) and other water quality parameters (dissolved oxygen <0.5 milligrams per liter, salinity up to 18 parts per thousand). They prefer shallow well-vegetated waters with slow currents. They use sight to detect their prey. Therefore, high turbidity may interfere with their feeding, and they are generally not found in waters where visibility is less than 6.5 to 13 feet. A complete description of pike life history and environmental tolerances is provided in Section 7.1.1.2.

1.1.2 Pike as an Invasive Species

Since the rediscovery of pike at Lake Davis in 1999, the pike are now well-established and are found throughout the reservoir. Consequently, the pike have adversely affected the trout fishery as well as the ecology of the reservoir. The problems pike have caused at Lake Davis could occur in other areas of the state or region if pike escape or are moved and become established elsewhere. For example, pike would be well-adapted to establish successful populations and disperse throughout the waters of the Central Valley if they are introduced into this system. Moyle and Marchetti (2006) indicate that factors that increase the probability of an invader being successful include:

- history of successful establishment outside their native range;
- life-history characteristics that promote success at multiple stages of the invasion process (e.g., high physiological tolerances);
- habitat that more or less matches the invasive species' native habitat;
- prior successful invasion within a region; and
- multiple introductions with starting populations of more than 100 individuals.

All of these parameters indicate that pike are likely to be successful invaders within portions of the Central Valley rivers and in the Delta. Pike have been successfully introduced throughout the United States (Section 7.1.1.3). Pike can tolerate conditions that are very stressful or lethal to many fish (high temperatures, low dissolved oxygen concentrations, brackish water). Habitat characteristics in the Sacramento-San Joaquin Delta and rivers in the Central Valley are very similar to those required by pike, and Central Valley streams and the Delta have high species richness. Of the factors that Moyle and Marchetti (2006) identify as predictors of invasion, the only factor that indicates pike might not be successful is that they are unlikely to be introduced in numbers greater than 100, unless such an act was deliberately undertaken. However, the initial introductions to Lake Davis and Frenchman Lake were likely substantially smaller than 100. Nevertheless, pike populations increased quickly in these reservoirs because female pike lay large numbers of eggs allowing only a few individual pike to produce quickly a large number of offspring. In addition, it is noteworthy that in 2006 small pike were found for the first time in the cove near the Lake Davis spillway. Hence, if the dam were to spill, it is reasonable to expect that more than 100 individuals could escape from Lake Davis.

Habitats within the main Central Valley rivers, and especially in the Delta, meet all of the habitat requirements described above, although turbidity can be less than optimal in portions of the Delta during some times of year. However, striped bass are also sight feeders and do well in the Delta. Pike habitat in the Middle Fork Feather River is good down to Sloat and limited downstream of Sloat through Lake Oroville from the Thermalito Diversion facilities. From this point downstream to the Delta, there are extensive areas of pike habitat in the main Central Valley rivers; in sloughs, wetlands, agricultural canals adjacent to these waters; and in the Delta itself (Table 1.1-1).

Table 1.1-1. Summary of Pike Habitat in Waterways of the Central Valley

Area	Spawning	Larval	Juvenile	Adult	Comments
Feather River Middle Fork, Sierra Valley	Good	Good	Good	Good	Low gradient section in Sierra Valley known to support pike
Feather River Middle Fork, Sloat-Lake Oroville	Poor	Poor	Poor	Poor	High gradient, little vegetation
Lake Oroville	Poor	Poor	Poor	Fair	Survivable, but not optimal
Thermalito Diversion Pool	Poor	Poor	Poor	Poor	Temperatures below optimal for growth
Thermalito Forebay	Good	Good	Good	Good	Cool, shallow water with aquatic vegetation
Thermalito Afterbay	Good	Good	Good	Good	Cool, shallow water with aquatic vegetation
Oroville Wildlife Area Ponds	Fair	Fair	Fair	Fair	Flooding would have to occur for spawning
Feather River, Oroville-Sacramento River	Good	Good	Fair	Good	Backwater areas with aquatic vegetation
Yuba River	Fair	Fair	Fair	Fair	Some areas of slow velocity and patchy aquatic vegetation
Sacramento River, RBDD-Chico Landing	Fair	Fair	Fair	Fair	Some aquatic vegetation and backwater areas
Mill Creek	Poor	Poor	Poor	Fair	High turbidity, no aquatic vegetation information
Deer Creek	Poor	Poor	Poor	Poor	Little relevant information
Sacramento River, Chico Landing -Verona	Poor	Poor	Poor	Poor	Highly channelized
Big Chico Creek	Poor	Poor	Poor	Fair	Some spawning habitat, high summer temperatures
Butte Creek	Fair	Fair	Fair	Fair	Butte Basin area for spawning
Sutter Bypass	Fair	Fair	Poor	Poor	Aquatic vegetation for spawning, but may be too turbid and water level in low velocity areas too unstable
Yolo Bypass	Fair	Fair	Poor	Poor	Aquatic vegetation for spawning, but may be too turbid and water level in low velocity areas too unstable
Sacramento River, Verona-Courtland	Poor	Poor	Poor	Poor	Highly channelized
American River	Fair	Fair	Fair	Fair	Some areas of patchy aquatic vegetation

Table 1.1-1. Summary of Pike Habitat in Waterways of the Central Valley

Area	Spawning	Larval	Juvenile	Adult	Comments
Cosumnes River	Good	Good	Fair	Fair	Large floodplain with abundant aquatic vegetation
Mokelumne River	Fair	Fair	Good	Good	Variable water velocity and high density of aquatic vegetation
San Joaquin River, Friant Dam-Merced River	Fair	Fair	Fair	Fair	Some spawning areas, but summer temperatures in lethal range
San Joaquin River, Merced River - Vernalis	Poor	Poor	Poor	Poor	Highly channelized
Merced River	Fair	Fair	Fair	Fair	Dredger ponds and slow sections of river with aquatic vegetation
Tuolumne River	Fair	Fair	Fair	Fair	Dredger ponds and slow sections of river with aquatic vegetation
Stanislaus River	Fair	Fair	Fair	Fair	Dredger ponds would provide spawning habitat
Calaveras River below Bellota	Poor	Poor	Poor	Fair	Not enough information available
Sacramento-San Joaquin Delta	Good	Good	Good	Good	Slow water velocity and high density of aquatic vegetation
Suisun Marsh	Poor	Poor	Poor	Poor	High turbidity and little aquatic vegetation besides tules

Source: *Maniscalco and Morrison 2006*

Pike can migrate over substantial distances. Pike have moved up to 46 miles to reach suitable spawning habitat. In the Green River in Colorado, individuals have been reported to move downstream 47 miles per year on average. Although pike prefer low velocity water, they can swim for short intervals in water velocities of 5 feet per second (1.5 meters per second) (Inskip 1982). This would enable them to ascend most riffles at some flows. In Canada, a small northern pike of approximately 12 inches was photographed jumping completely out of the water and ascending a step-pool fish ladder. This indicates that pike have the physical capability to colonize other areas and expand their distribution should they escape from Lake Davis.

1.1.3 Mechanisms of Escape and Spread from Lake Davis

If pike are not eradicated from Lake Davis, they will almost certainly escape the reservoir and spread to other waters within the state or region at some time in the future (Moyle 2002). Pike escape could occur in a number of ways, including through the dam outlet works, over the spillway if the reservoir spills, or through intentional or unintentional translocation by people (e.g., in bait buckets, live wells, and/or bilge water). Pike initially entered Lake Davis through illegal introduction.

Escape through normal dam operations is moderated through the presence of a fish grater on the dam outlet works. This device, a series of bars with small gaps between them, appears to be effective in preventing adult fish from moving downstream through the outlet. However, eggs, fry, and juveniles might not be affected by this device. These life stages have not escaped at this point (based on available information), because they do not inhabit the deep water where the normal intake to the outlet works is located. However, it may not always be possible to limit outflow to this deeper intake because of future domestic water needs.

The California Department of Water Resources (DWR) designed, proposed, and approved a pike containment structure project known as the Northern Pike Containment System at the outlet of Lake Davis on Big Grizzly Creek to prevent any life stage of pike from moving downstream into Big Grizzly Creek, and into the Feather and Sacramento River system, in furtherance of the CALFED Bay-Delta Ecosystem Restoration Program goals. This DWR project is scheduled to be completed prior to implementation of the DFG's proposed pike eradication project (DWR 2006a). This structure would have the capacity to pass up to a range of 145 to 200 cfs flow capacity through a 1 millimeter strainer. This opening is small enough to remove or sufficiently damage all pike eggs and larva from the discharged water. This facility would help ensure that pike would not move out of the reservoir with the release water.

Escape could also occur through spill events. Thus far, this has been prevented through dam operations. A spill prevention strategy has been employed successfully since pike were re-discovered in Lake Davis in 1999. There is substantial uncertainty about how long such a strategy will remain successful. In a year with a large snowpack and a warm "rain-on-snow" event, total inflow could exceed the dam's capacity and spill within a few weeks (Appendix D). There have been three years in the 38-year period of record where inflow to the reservoir has been near its total capacity. There are 7 months within this same period of record when the inflow in a single month has exceeded 20 percent of the reservoir's total capacity. If the reservoir were to be operated to prevent spill in this type of event, reservoir

levels would need to be maintained well below its total capacity. This year, inflow to the reservoir came within approximately 27 inches of its total capacity. As mentioned previously, in 2006 small pike were found for the first time in the cove near the Lake Davis spillway.

If pike were to escape from Lake Davis through the outlet works or through a spill event, they could move downstream through Big Grizzly Creek into the Middle Fork Feather River and spread up and downstream from there. Pike populations have previously established in the Middle Fork Feather River and were eradicated using rotenone in 1992. Their previous presence indicates that portions of the Middle Fork Feather River provide suitable habitat.

Pike could also be spread by humans. Where they would be spread is very difficult to predict. Pike could be moved to waterways that are distant from and not connected to Lake Davis; and from these locations they could spread throughout much of the state. Such spread could be inadvertent, through live wells, bait buckets, bilge water, or aquarium collections. It could also be deliberate. Pike were illegally introduced to Frenchman Lake from out of state. In Arizona, the range of pike has expanded significantly since their initial introduction there. Recently, pike were rediscovered in Comins Lake, Nevada, which had previously been treated to eradicate pike. It is suspected that pike were reintroduced from another lake nearby that had not been treated.[1]

1.1.4 Pike in California Ecosystems: the Potential for Damage

As previously stated, since the rediscovery of pike at Lake Davis in 1999, the pike are now well-established and are found throughout the reservoir. Consequently, the pike have adversely affected the trout fishery as well as the ecology of the reservoir. The problems pike have caused at Lake Davis could occur in other areas of the state or region if pike escape or are moved and become established elsewhere. Pike are voracious predators that are likely to successfully invade other waters, including those of the Central Valley, should they escape from Lake Davis, which is likely unless they are eradicated.

Evaluating the effects of pike in the waterways of the Central Valley requires numerous assumptions, the first being the rate at which they are able to spread their population. Within the small, isolated waters of Lake Davis, pike took only a few years to increase their populations from a few fish to many thousands (as indicated by sampling conducted after the 1997 treatment). Based on this rate of expansion, expansion seen in the Colorado's Green River system, and the oscillation of currents within the Delta (which would help move individuals to new locations), it is not unreasonable to assume that pike could become firmly established throughout the Central Valley within 15 to 30 years. Once established in the Delta, it is likely that pike would be drawn into the pumps of the State Water Project (SWP) and Central Valley Project (CVP) and be transported to other water bodies associated with those water systems.

The effect of an established pike population on fishes within these waters cannot be quantified with certainty (Maniscalco and Morrison 2006, Appendix A). In part, the effect will depend upon two factors: first, the ability of a prey species' population to naturally compensate, or increase their number, in response pike predation, and second, the effect of

[1] Nevada Department of Wildlife website: http://www.ndow.org/about/news/pr/020706_comins_pike.shtm

pike on populations of other predatory species. With regard to the first factor, fish populations can sometimes naturally compensate for heavy predation by increasing their reproductive output and survival of individuals. This type of compensation is well-documented in fish. It must be noted, however, that many fish populations in the waters of the Central Valley are already at very low levels and face a number of other threats. In many instances where fish populations are critically low these species can no longer increase their numbers in response to predation. Therefore, the potential for negative impacts from pike is great on these imperiled species.

Another factor may be competition for food resources between pike and other native predator species (e.g., striped bass), which may limit populations of both species. In this case the fish eaten by pike are not available to be eaten by striped bass or another predator, or vice versa. Pike may also feed directly on the other predatory species, lowering the number of these predators, thus reducing predation from that source on native species compensating for predation by pike.

There may be some potential for a synergistic effect on prey species resulting from the presence of pike and striped bass. Both striped bass and pike are sight predators, although they have different feeding techniques. Pike are a lie-in-wait predator, occupying the weeds in shallow areas waiting for prey to come to them. Striped bass are a pursuit predator, using mid-channel areas and chasing down their prey in open water. The presence of both types of predators in the system may leave little refuge for prey species to hide. If they seek the margins to avoid the striped bass, they are vulnerable to the pike; and if they seek the center channel to avoid the pike, they are vulnerable to the striped bass.

In spite of some uncertainty in quantifying the impacts of pike on fishes in the Central Valley should they become established, it is likely the effects would be great. These waters support a number of species whose populations have already declined significantly, as well as many other species which are vulnerable to predation by pike (Maniscalco and Morrison 2006, Appendix A) (Table 1.1-2). Many of these species are likely to be adversely affected should pike become established in the waterways of Central Valley. These include chinook salmon, steelhead, delta smelt, and splittail, the populations of which are currently in peril, even without the presence of pike in the Delta (Moyle 2002).

Table 1.1-2. Ranked Listing of Vulnerability of Central Valley Native Species to Pike Predation

Species	Life History Stage
Splittail	all
Rainbow trout/steelhead	fry, juvenile
Chinook salmon	fry, juvenile
Sacramento sucker	fry, juvenile
Pikeminnow	fry, juvenile
Delta smelt	all
Longfin smelt	all
Hardhead	fry, juvenile
Sacramento blackfish	fry, juvenile

Table 1.1-2. Ranked Listing of Vulnerability of Central Valley Native Species to Pike Predation

Species	Life History Stage
Hitch	fry, juvenile
Speckled dace	all
California roach	all
Tule perch	all
Lamprey	ammocoetes, juveniles

Source: *Maniscalco and Morrison 2006*

Juvenile and larger pike are likely to feed on these species. In particular, eggs, fry and juvenile delta smelt and splittail share the same habitat that would be used by pike fry and juveniles. Pike fry and juveniles would prey upon these lifestages, when they are particularly vulnerable. All life stages of delta smelt are likely to be preyed upon by pike. Operations at the SWP and CVP pumps are constrained by delta smelt populations. If pike reduce the number of delta smelt, this could result in lower pumping rates during some seasons, which would limit the amount of water available for water supply for agricultural, municipal, and industrial uses.

Populations of several races of salmon in California are already in trouble. The recent restrictions of the California commercial season by the Pacific Fishery Management Council shows the consequences of low salmon returns. While these restrictions were prompted by the anticipated low returns in the Klamath River, Central Valley populations of spring and winter run chinook are also at low numbers. The introduction of pike into Central Valley waterways could push these species closer to the edge of extinction. Salmonids (salmon and steelhead) have been preyed upon extensively by pike in other systems. Pike have decimated the historically dominant salmonid populations in some lakes in the Suisitna River drainage in Alaska (D. Krieger transcript of Pike Committee, Bosch email to D. Paul). Fewer returning salmon could significantly reduce commercial and recreational salmon fishing.

1.2 Project Objectives/Purpose and Need

The DFG proposes to eradicate pike from Lake Davis and all of its tributaries to re-establish the trout fishery at Lake Davis and to prevent the pike from escaping from the reservoir and causing ecological impacts such as those that have occurred at Lake Davis in other parts of the State or region. The USFS action for the project is the issuance of a special use permit to the DFG and (potentially) two Forest Closure Orders, in order to protect resources as well as public health and safety.

The primary objective of the combined proposal is to:

- successfully eradicate pike from Lake Davis and its tributary waters.

The secondary objectives of the project are to:

- carry out the project quickly to reduce the ongoing risk that pike will escape or be moved from the reservoir and spread to other waters;

- use a method that has been proven to be effective in laboratory and field experiments;
- use a method that is technically feasible to implement;
- comply with applicable laws;
- protect public health and safety; and
- minimize environmental impacts.

The project is needed because efforts to control and contain the pike population in Lake Davis have been of limited value. The pike population continues to grow despite these efforts and anglers are increasingly catching more pike. In addition, on May 20, 2006, the DFG conducted a checkpoint at Lake Davis and discovered that anglers are moving live pike from the reservoir. Of 71 vehicles that were inspected, five pike were found, two of which were alive. All five pike were confiscated. In addition, as previously mentioned, in 2006 the reservoir came within 27 inches of capacity because of an unusually wet winter and spring, and small pike were found for the first time in the cove near the Lake Davis spillway.

Should pike escape or be moved from Lake Davis, they have the potential to do irreversible damage to the aquatic ecosystem and fisheries in the San Francisco Bay-Delta estuary and its watershed, as well as potentially harm other areas of California and the region. The CALFED Bay-Delta Program Ecosystem Restoration Program Plan has identified halting the unauthorized introduction and spread of potentially harmful non-native introduced species of fish, such as pike in Lake Davis, in the Bay-Delta and Central Valley as a strategic objective (CALFED 2000).

1.3 Alternatives Considered in this EIR/EIS

Seven project alternatives are described in this document with more detailed discussions in Section 2.

This section gives a brief description of each alternative to introduce the reader to the range of actions the alternatives represent. The first alternative is the No Project/No Action alternative. The Proposed Project and four other alternatives involve rotenone treatment of Lake Davis and its tributaries, with Lake Davis being maintained or drawn down to differing volumes of 15,000, 5,000, 35,000, and 48,000 acre-feet, respectively, by as early as mid-August 2007. Two alternatives are identified for 15,000 acre-feet, involving treatment with either a liquid or powdered rotenone formulation. These reservoir volumes are shown on Figure 1-1, Alternative Reservoir Volumes. The seventh alternative is a non-chemical alternative, involving the complete dewatering of the reservoir and its tributaries. The location of the project is addressed in Section 2. An identification of potential permits and other approvals required to implement the project, is included in Section 1.6.3. A summary of each alternative is provided below.

Figure 1-1 Alternative Reservoir Volumes

Figure 1-1 BACK

1.3.1 No Project/No Action

The No Project/No Action (hereafter called No Project) alternative would continue the existing reservoir and fishery management practices as of September 2005 into the foreseeable future. These practices are consistent with the current, adopted plan to control and contain pike. The goal of the current plan, "Managing Northern Pike at Lake Davis, A Plan for Y2000," known as the *Y2000 Plan* (DFG 2000), is to control the population of pike in Lake Davis and to keep the pike contained in the reservoir. The containment of pike is likely temporary and control of the population has not been achieved by the current management program. There would be neither a special use permit nor Forest Closure Orders. Recreation activity would continue with declines in angling, similar to recent years.

The *Y2000 Plan* calls for adaptive management, allowing for the periodic assessment of recommendations. The DFG periodically evaluates and assesses progress (DFG 2003a). Due to the fact pike pose a serious threat to aquatic resources in California, future management plan evaluation may result in recommendations to change the Lake Davis fishery management program. Any significant changes to the program would be done in consultation with the Lake Davis Steering Committee and the general public.

1.3.1.1 Reservoir Operations

Lake Davis is operated by the DWR, consistent with its primary purposes of recreation, fish and wildlife enhancement, and water supply. The spillway elevation of the reservoir is 5,775 feet, which provides a capacity of approximately 84,000 acre-feet and a surface area of about 4,000 surface acres. Lake Davis is currently managed to operate below its capacity primarily to minimize the potential for pike escapement.

Under this management regime, reservoir elevation typically fluctuates between 5,761 and 5,768 feet over the course of the year. At an elevation of between 5,761 and 5,768 feet, the volume of Lake Davis is between about 38,200 acre-feet and 58,700 acre-feet, and the surface area is between approximately 2,565 acres and 3,302 acres. Typically, the reservoir is near-filled each winter through spring by capture of seasonal precipitation and snowmelt runoff. Maintenance of minimum downstream releases, typically ranging from 10 to 23 cubic feet per second and depending on maximum May to June reservoir surface elevation, results in the reservoir normally losing several feet of elevation over the course of summer through fall. Independent diverters take some of this water from Big Grizzly Creek at a point approximately four miles downstream from the dam.

In May 2006, DWR approved a containment project it designed and proposed, known as the Northern Pike Containment System at the outlet of Lake Davis on Big Grizzly Creek, to prevent any life stage of pike from moving downstream into Big Grizzly Creek, and into the Feather and Sacramento River system, in furtherance of the CALFED Bay-Delta Ecosystem Restoration Program goals. This DWR project is part of the No Project/No Action alternative.

1.3.1.2 Other Pike Control Measures

The control and containment strategy includes several recommendations outlined in the *Y2000 Plan* (DFG 2000) and the *Y2000 Plan: Three Year Report* (DFG 2003d). These reports describe various control and containment measures that have been attempted to control pike in Lake Davis. A summary of these measures is described in Section 2.2.2. Despite the implementation of control and containment measures and experimental procedures from 2000-2002, there has been a 10-fold increase in the pike catch rate. This suggests that the pike population in Lake Davis is expanding. Continued use of these control measures is inadequate to compensate for pike reproduction.

1.3.2 Proposed Project/Proposed Action – 15,000 Acre-Feet (Plus Treatment)

Under the Proposed Project, the reservoir would be drawn down to 15,000 acre-feet and a liquid rotenone formulation would be applied throughout the open water of the reservoir, to the reservoir shoreline areas, to tributary streams, and to any pools, ponds, or springs in the watershed potentially containing pike. With a volume of 15,000 acre-feet, the surface elevation of Lake Davis is approximately 5,749 feet and the surface area is approximately 1,331 acres. Project implementation would commence with reservoir drawdown beginning potentially as early as January 2007, followed by rotenone application between mid-August and late October of 2007.

The PNF would issue a special-use permit and (potentially) two Forest Closure Orders.

1.3.3 Alternative A – 15,000 Acre-Feet (Plus Treatment Including Powder)

Alternative A is similar to the Proposed Project except a powdered form of rotenone (ProNoxfish®) would be used in the reservoir, and liquid rotenone (Noxfish® or CFT Legumine®) would be applied to the tributary streams, pools, ponds, or springs in the watershed that could contain pike. Alternative A was selected to evaluate the use of powdered rotenone in the reservoir, which has a different chemical composition from liquid rotenone and has no potential for odor.

The PNF would issue a special use permit and Forest Closure Orders.

1.3.4 Alternative B – 5,000 Acre-Feet (Plus Treatment)

Under Alternative B, the reservoir would be drawn down to 5,000 acre-feet and liquid rotenone would be applied throughout the reservoir; to reservoir shoreline areas; to tributary streams; and to any pools, ponds, or springs in the watershed potentially containing pike. At a volume of 5,000 acre-feet, the surface elevation of Lake Davis is approximately 5,738 feet and the surface area is approximately 550 acres. Project implementation would commence with reservoir drawdown beginning potentially as early as January 2007, followed by rotenone application between mid-August and late October of 2007. Alternative B was selected for evaluation because it would require the least amount of rotenone compared with the other alternatives that involve the use of rotenone.

The PNF would issue a special use permit and two Forest Closures Orders.

1.3.5 Alternative C – 35,000 Acre-Feet (Plus Treatment)

Under Alternative C the reservoir would be drawn down to 35,000 acre-feet and liquid rotenone would be applied throughout the reservoir; to reservoir shoreline areas; to tributary streams; and to any pools, ponds, or springs in the watershed potentially containing pike. The primary differences between Alternative C and the Proposed Project and Alternatives A and B include: the amount of time required for drawdown, the resulting reservoir size (both surface area and volume), the length of the tributary streams to be treated, the resulting amount of rotenone required, and the project duration, which includes the time from commencement of drawdown, through the treatment period, until Lake Davis is refilled to a 45,000 acre-foot level. At a volume of 35,000 acre-feet, the surface elevation of Lake Davis is approximately 5,760 feet and the surface area is approximately 2,439 acres. Alternative C represents a limited recreation alternative. Under this alternative, the boat ramp at Honker Cove could be extended to allow boat access to the reservoir. The other three boat ramps would not be usable.

The PNF would issue a special use permit and two Forest Closure Orders.

1.3.6 Alternative D – 48,000 Acre-Feet (Plus Treatment)

Under Alternative D the reservoir would be drawn down to 48,000 acre-feet (from a May-June maximum) and liquid rotenone would be applied throughout the reservoir; to reservoir shoreline areas; to tributary streams; and to any pools, ponds, or springs in the watershed potentially containing pike. Alternative D differs from the other alternatives in the amount of time required for drawdown, the resulting surface area and volume of the reservoir, the length of the tributary streams to be treated, the resulting amount of rotenone required, and the project duration, which includes the time from commencement of drawdown, through the treatment period. Because a volume of 48,000 acre-feet would be maintained, no refilling operations would be required. At a volume of 48,000 acre-feet, the surface elevation of Lake Davis is approximately 5,764 feet, and the surface area is approximately 2,936 acres. Alternative D would permit full boat access to the reservoir, as all ramps would be functional. It is similar to the level of the reservoir for the previous treatment in 1997, and has the highest probability of being accomplished in all water years by August 1.

The PNF would issue a special use permit. A Forest Closure Order to protect human health and safety during rotenone application would be issued. A Forest Closure Order to protect cultural resources would not be necessary, since reservoir levels would not drop below 45,000 acre-feet.

1.3.7 Alternative E – Dewater Reservoir and Tributaries (No Chemical Treatment)

Under Alternative E, the eradication of pike from Lake Davis would be attempted without the use of chemicals by completely draining the reservoir and all water sources flowing into it. Any water-filled depressions within the reservoir footprint, stream channels, overflow areas, or other standing water areas would be drained. This alternative was selected for evaluation because it looked like the most feasible, non-chemical means of eradicating pike. Generally, the dewatering of streams and lakes is a proven and effective method to kill fish.

However, the feasibility of dewatering streams at this scale and setting (Lake Davis watershed) is questionable. This alternative was brought forward for further evaluation in the EIR/EIS. If feasible, these systems would be kept dry long enough to eliminate all pike. Under this alternative, no piscicides would be used; and, therefore, any potential risks to human health associated with the use of rotenone would be eliminated.

A special use permit would be issued to the DFG by the PNF. Two Forest Closure Orders would be issued. Instead of a forest-closure order to protect human health and safety during rotenone application, the closure would protect humans during intensive construction operations.

1.4 Decision Framework

The USFS is the lead agency under NEPA and will issue a NEPA Record of Decision (ROD) signed by Forest Supervisor James M. Peña. He will also decide whether to issue two Forest Closure Orders for the Lake Davis Pike Eradication Project and issue a special use permit to the DFG.

The DFG is the lead agency under CEQA and will decide whether to certify the EIR/EIS. Under the CEQA process, after certification and consideration of the Final EIR/EIS, the DFG Director will decide whether or how to approve or carry out a project.

The DFG Director could decide to approve a project that is the Proposed Project, any of the alternatives, or a variation thereof that involves a water level or range of water levels that is different from the water levels of the Proposed Project and alternatives, but within the parameters or decision space of the environmental analysis of the Final EIR/EIS. This latter approach was discussed in *Village Laguna of Laguna Beach, Inc. v. Orange County Board of Supervisors* (1982) 134 Cal.App.3d 1022, 1028-1029 (*Laguna Beach*) ("It is not unreasonable to conclude that an alternative not discussed in an EIR could be intelligently considered by studying the adequate descriptions of the plans that are discussed"). The court in that case contemplated the power of an agency to approve an alternative that was not expressly discussed in an EIR so long as the impacts of that alternative were within the scope of impacts analyzed in the EIR. In *Laguna Beach*, the EIR analyzed a residential development proposal for 20,000 new homes, as well as alternatives for 4 homes, 7,500 homes, 10,000 homes, and 25,000 homes. The court concluded, for instance, that from the data analyzing the proposed project and the various alternatives "one could discern the vehicle miles traveled and the air quality impacts of a 16,000 home alternative." (*Ibid.*)

A decision to choose a different water level or a range of water levels that differs from the water levels specified in the Proposed Project or alternatives may arise because there are uncertainties associated with the reservoir water level in any given year due to variation in precipitation, evaporation, and other circumstances. This could occur because of the unpredictability of determining in any given year what the reservoir water level would be by mid-August or late October. Such a decision would be supported by the environmental analysis provided in the Final EIR/EIS because it analyzes the environmental impacts of alternatives that cover a range of water levels spanning from no water to 48,000 acre-feet. For example, the DFG Director could decide to approve a project that involves treatment of the reservoir at a water level between 15,000 and 25,000 acre-feet. In this example, the DFG

Director would consider the impacts and mitigations identified by the Final EIR/EIS for the Proposed Project or Alternative A (15,000 acre-feet) as well as Alternative C (35,000 acre-feet).

If the DFG Director approves a project, it will be done in conjunction with the DFG making written findings for each significant environmental impact identified by the Final EIR/EIS. In addition, if a project is approved, the DFG must adopt a program for reporting on or monitoring of the mitigation measures it has imposed to mitigate or avoid significant environmental effects of the project.

Potential permits and approvals, and/or consultations required to implement the project are discussed in Section 1.6.6 below.

1.5 Authority for the Project

The State of California's fish and wildlife resources are held in trust for the people of the State by and through the DFG. (Fish & G. Code, § 711.7). The DFG's mission statement states that:

> "The Mission of the Department of Fish and Game is to manage California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public.
>
> The Department of Fish and Game maintains native fish, wildlife, plant species and natural communities for their intrinsic and ecological value and their benefits to people. This includes habitat protection and maintenance in a sufficient amount and quality to ensure the survival of all species and natural communities." (DFG Mission Statement www.dfg.ca.gov/html/dfgmiss.html)

The Legislature has declared the protection and conservation of the fish and wildlife resources of the state to be of utmost public interest. (Fish & G. Code, § 1600) The Legislature has also declared that it is the policy of the State that all state agencies, boards, and commissions shall seek to conserve endangered and threatened species and shall utilize their authority in furtherance of conserving, protecting, restoring and enhancing any endangered or threatened species and its habitat (Fish & G. Code, §§ 2052 and 2055). Many sections of the FGC provide for the protection and management of California fisheries and other aquatic resources, including but not limited to the following: 1600 *et seq.*, 1700, 2050 *et seq.*, 2118, 2119, 5501, and 15500 *et seq.*, and associated regulations in Title 14 of the California Code of Regulations (CCR), such as, 5.51, 236, 238, 238.5, and 671.

Pike have been designated "detrimental" by the State and are restricted because they have been found to pose a threat to native wildlife, the agriculture interests of the state or to public health or safety under Section 671, subdivisions (b) and (c)(5)(Q) of Title 14 of the CCR. It is unlawful to import, transport, or possess live restricted animals listed in Section 671 of Title 14 of the CCR, including pike, except under permit issued by the DFG.

This project is designed to protect the fishery and other aquatic resources of the State including, but is not limited to, Lake Davis as well as threatened and endangered species in the Bay-Delta, by eradicating pike from Lake Davis and its tributaries. The Proposed Project

and four of the alternatives involve the use of the piscicide rotenone, a recognized fish management tool.

This project is pursuant to the DFG's authority as provided by Section 5501 and other provisions of the FGC, as stated above, and is in furtherance of the DFG's mission, policies of the state, and the CALFED ERP Plan's strategic objective of halting the unauthorized introduction and spread of potentially harmful non-native introduced species of fish, such as pike in Lake Davis, to the Bay-Delta and Central Valley (CALFED 2000).

The Forest Supervisor of the Plumas National Forest is authorized to issue special uses authorizations for use and occupancy of National Forest System lands under the Organic Act of June 4, 1897, 30 Stat. 35 (16 U.S.C. 551), as outlined in 36 CFR 251.53. In addition, Forest Supervisors are granted authority to close or restrict use of National Forest System lands over which they have jurisdiction by Title 36, Code of Federal Regulations (CFR), Section 261.50, Subpart B – Prohibitions in Areas Designated by Order. Language in 36CFR261.53(a-f) authorizes forest closures for the protection of various amenities, including (c) historical artifacts and (e) public health and safety.

1.6 Public and Agency Involvement

The DFG and USFS are committed to an inclusive, open, and transparent process to evaluate the Proposed Project and the alternatives to eradicate pike from Lake Davis. They are actively engaging the local community through a variety of public outreach activities including, but not limited to, participating in meetings of the Lake Davis Steering Committee and other community or club meetings, and holding informational workshops.

Announcements and updates regarding the project and public outreach activities are made by one or more means which may include, but not necessarily be limited to, news releases, mailings, handouts, announcements at Lake Davis Steering Committee meetings, and the DFG's website at: http://www.dfg.ca.gov/northernpike.

The DFG and USFS conducted scoping meetings prior to preparing the Draft EIR/EIS. In addition, the DFG and USFS are consulting and coordinating with numerous State, Federal, and local agencies.

1.6.1 Lake Davis Steering Committee

After the 1997 eradication treatment, a group of local community members and leaders formed the Lake Davis Steering Committee with participation by representatives of Federal, state, and local governmental agencies, including the DFG, to share information and address issues regarding pike in Lake Davis. The Lake Davis Steering Committee meets regularly with the DFG, and other State, Federal, and local agencies. In December 2003, the Lake Davis Steering Committee sent a letter to Secretary for Resources Mike Chrisman requesting that the DFG research alternatives for ridding pike from the reservoir, while protecting public health and the local economy. In response, Secretary Chrisman recognized the need for the DFG to investigate safe and effective methods of ridding the State of pike. He also acknowledged that cooperation, protection of public health, and consideration of economic repercussions are important to any decision to effectively deal with the pike.

The members currently include:

- Dennis Alexander, Grizzly Ranch;
- John Ball, Rotary;
- Terry Bergstrand, Plumas County Sheriff;
- Steve Clifton, Leonard's Market;
- Claudia Wronker, Grizzly Lake Resort Improvement District;
- Colleen Marsh, Lake Davis Coalition;
- Jim Murphy, City of Portola;
- Bill Powers, Plumas County Supervisor, District 1; and
- Fran Roudebush, Lake Davis Coalition.

1.6.2 Public Scoping

The DFG, in compliance with CEQA issued a Notice of Preparation (NOP) September 14, 2005. The USFS published a Notice of Intent (NOI) in the Federal Register (Volume 68: Number 217), also on September 14, 2005. The date of publication for both the NOP and NOI signified the opening of the scoping period which invited the public to offer comments on the project until public scoping ended on October 31, 2005. See Appendix B for the NOP, the NOI, and the CEQA Initial Study. The project was published in the PNF Schedule of Proposed Actions in July 2006.

Four public scoping meetings on the project were held prior to preparation of this EIR/EIS. Two meetings were held on September 26, 2005, in Portola, California, at the Eastern Plumas Health Care Education Center. The first meeting began at 1:00 p.m.; the second, at 6:30 p.m. The third and fourth meetings were held in Sacramento, California, at the Radisson Hotel on September 28, 2005, at 1:00 p.m. and 6:30 p.m. Public press releases were issued to local radio, television, and print media outlets to notify the public of the meetings. Approximately 4,022 direct mailing notifications were prepared and sent to all residents of Eastern Plumas County. An additional 1,000 notices were sent to potentially interested parties including land owners, residents, various State, local, and Federal agencies along with existing DFG and USFS contacts.

These meetings were conducted to inform the public of the role that attendees and interested parties could play in the environmental review process and that their scoping comments would be considered in preparing the Draft EIR/EIS and would be published in a scoping report as part of the public record. Information concerning the project background and justification was presented to the attendees as well as an overview of the Proposed Project and its potential effects, which were identified in the Initial Study. Participants were encouraged to provide verbal comments on the Proposed Project at the scoping meetings, which were recorded by a note taker at the meeting for the DFG and USFS. They were also invited to provide written comments. Approximately 108 individuals attended the scoping meetings in Portola, and another 39 individuals attended the meetings in Sacramento.

The public comments received are summarized in the Final Scoping Report for the Proposed Lake Davis Pike Eradication Project (February 2006) and subsequent Errata (June 2006) (Scoping Report), which is available online at: http://www.dfg.ca.gov/northernpike and at local DFG and USFS offices. Thirty-nine comments were received at the scoping meetings and another 123 written comments were received by U.S. mail, email, fax, or hand-delivery. The following members of the public submitted comments, which were considered by the DFG and USFS in preparing the Draft EIR/EIS:

Alice Abbott
Joseph Abbott
Cam Allen
Gabino Alonso
Laurel Ames
Raymond Anderson
Julie Ann
Rob Ayers
Bob Biaocchi
Ken Baker
Linda Blum
Valerie Bowlby
Lynn Boyer
Steve Bridges
David Brierley
Dr. Edward Bruno
Sarah Bruno
F. Ray Bryant
Albert Carlson
Collin Carr-Hall
Steve Clark
Larry Cooper
Jeanne Dansby
Richard Dickerson
Paula Dolliver
Martha Drum
Michelle Dubois
Richard Dunn
Diana Lynn Eastep
Nancy Erman
Lourene Fitzsimmons
Elizabeth Ford
Donald Gaines
William Gardner
Peggy Garner
James Gaumer
Pete Giampaoli
Gabriel Gorbet
Carolyn Gregg
Lorraine Gronli
David Hall
Willie Hall
Daniel T. Harvey
Rick Haynes
Paul Hendricks
Alex Hernandez
Dave Hinrichs
Phelps Hobart
David Hollister
Holly
Mike Huber
John Iverson
David L. Johnson
Joshua Johnson
Linda Johnson
Robert J. Keppel
Cynthia Larner
Ron Leger
John A. Lindbo
Bill Love
Charlene Low
Lee Lundgren
Terry Margeneau
Howard Markham
Colleen Marsh
Ray Maxfield
Dr. Ann McCampbell
Kathleen McGrath
Heather Mcintire
Ann Miceli
Dana W. Miller
Donna Mitchell
David Munizza
Jennifer Murray
Donna Murrill
Dick Murrill
Ray Narbaitz
Pete Niebauer
D. Parodi-Nye
Patti Pellum
Bill Powers

Aaron Ray	Mary Rucker	Roger A. Stokes
Jerry Rector	B. Sachau	Harry Surtees
Harry G. Reeves	Geoffrey Schladow	Wanda Timmerman
Eric Reitzell	Carl Scholberg	Adrienne Truex
Dennis Robinson	Maren Scholberg	John Umstead
Eilen Rodrigues	Kurt Scholberg	Tom Venus
Fran Roudebush	La Donna Scholberg	Mark Younger
Gerald Rucker	Brad Scott	

1.6.3 Agency Consultation and Coordination

The DFG and USFS are actively consulting and coordinating with Federal, State, and local agencies, and tribes that have an interest in the project or could have a role in reviewing and/or providing permits or other approvals for aspects of the project.

The DFG and USFS have met and continue to meet with representatives of various federal, state, and local agencies regarding the respective interests of these agencies. (See Table 1.6-1 for a list of potential agency approvals and agencies that will use this EIR/EIS.) In addition, the agencies listed below were invited to attend a facilitated agency review meeting on June 7, 2006, in Sacramento to discuss an Administrative Draft of the EIR/EIS. These agencies were asked to review the portions of the Administrative Draft relevant to that agency's jurisdiction, responsibilities, and concerns, and be prepared to provide input on the following: 1) errors and omissions; 2) significance criteria; 3) environmental effects; and 4) potential mitigation measures. Additional cooperation and coordination continues.

- California Department of Boating and Waterways (DBW)
- California Department of Food & Agriculture
- California Department of Health Services (DHS)
- California Department of Pesticide Regulation (DPR)
- California Department of Toxic Substances Control (DTSC)
- California Department of Transportation (CALTRANS)
- California Department of Water Resources (DWR)
- California Native American Heritage Commission (NAHC)
- Central Valley Regional Water Quality Control Board (RWQCB)
- City of Portola
- National Marine Fisheries Services (NMFS)
- Northern Sierra Air Quality Management District (NSAQMD)
- Office of Environmental Health Hazard Assessment (OEHHA)

- Plumas County
- Plumas County Agricultural Commissioner
- Plumas County Environmental Health Department
- State Historic Preservation Officer (SHPO)
- State Water Resources Control Board (SWRCB)
- US Army Corps of Engineers (USACE)
- US Department of Agriculture (USDA)
- US Environmental Protection Agency (USEPA)
- US Fish and Wildlife Service (USFWS)
- US Forest Service (USFS)

Many of these agencies attended and provided information to the DFG and USFS that was considered in the preparation of the Draft EIR/EIS.

1.6.4 Distribution of the EIR/EIS

The Draft EIR/EIS has been posted on the DFG website and distributed to the State Clearinghouse and to the following officials, agencies, libraries, and the DFG and USFS offices as indicated below:

-

Federal Agencies

- Advisory Council on Historic Preservation
- Federal Aviation Administration, Western-Pacific Region
- Federal Highway Administration – California
- Lawrence Livermore National Laboratory
- National Marine Fisheries Service (NMFS)
- NMFS Habitat Conservation Division
- NOAA Office of Policy and Strategic Planning
- US Army Corps of Engineers (USACE), San Francisco Division
- US Coast Guard, Environmental Management
- USDA Animal and Plant Health Inspection Service
- USDA National Agricultural Library
- USDA Natural Resources Conservation Service

- USDA Office of Civil Rights
- US Department of Energy, Office of NEPA Policy and Compliance
- US Department of Interior, Office of Environmental Policy and Compliance
- USEPA, Region 9 San Francisco
- USEPA, Washington, DC
- US Fish and Wildlife Service (FWS)
- USFS, Blairsden, Quincy, Vallejo, OGC)
- University of California at Davis (UCD)

Federal Tribes

- Greenville Rancheria
- Susanville Indian Rancheria
- Washoe Tribe of Nevada and California

State Agencies

- California Department of Boating and Waterways (DBW)
- California Department of Fish and Game (DFG) – Rancho Cordova, Portola, Stockton, Sacramento
- California Department of Health Services (DHS)
- California Department of Pesticide Regulation
- California Department of Toxic Substances Control (DTSC)
- California Department of Water Resources (DWR)
- Central Valley Regional Water Quality Control Board (CVRWQCB)
- Native American Heritage Commission
- Office of Environmental Health Hazard Assessment (OEHHA)
- State Clearinghouse
- State Historic Preservation Office
- State Water Resources Control Board (SWRCB)

Regional and Local

- Alice Abbott
- Bob Biaocchi
- Center for Collaborative Policy
- Nancy Erman
- Grizzly Lake Resort Improvement District (GLRID)
- Jack Herzberg
- Lake Davis Steering Committee
- Northern Sierra Air Quality Management District
- Plumas County Board of Supervisors
- Plumas County Department of Public Works
- Plumas County Environmental Health
- Plumas Sierra Counties Department of Agriculture
- Portola City Hall
- Portola Library
- Quincy Library
- Sacramento Library
- Ronald Zumbrum

In addition, the Notice of Availability, including a web link to the EIR/EIS was sent to the Lake Davis mailing list of approximately 250 individuals, landowners in the watershed below Lake Davis, and residents of eastern Plumas County (a total of about 4,000 individuals). Also, a finite number of copies (CD and hard copy) are being made available at no cost to the public on a first-come/first-served basis.

1.6.5 Intended Uses of the EIR/EIS

This section identifies the agencies that are expected to use the EIR/EIS in their decision-making, potential permits and approvals, and related environmental review and consultations required by Federal, State, and local laws, regulations, or policies, for implementation of an approved project to the extent that information is known.

As was explained in detail in Section 1.4, the USFS is the lead agency under NEPA. The USFS will issue a Record of Decision stating that the EIR/EIS complies with NEPA's requirements and decide whether to issue two Forest Closure Orders for the Lake Davis Pike Eradication Project and a special use permit to the DFG. The DFG is the lead agency under CEQA. The DFG will decide whether to certify that the EIR/EIS complies with CEQA's

requirements and, after certification and consideration of the Final EIR/EIS, will decide whether or how to approve or carry out a project.

In the event the DFG approves a project that involves the use of rotenone, the timetable for implementing the project would be short and critical. Given the time it would take to draw down the reservoir and the seasonal weather conditions that could affect water temperatures, there would be a short timeframe in which a rotenone treatment could be done and be effective. Any potential legal challenges to such a project could delay implementation for weeks, as was the case in 1997, or for another year until reservoir levels and seasonal conditions are optimal for an effective treatment. Given the ever-increasing pike population, the increasing incidence of anglers catching pike, recent known incidents of anglers moving live pike, and the potential for spilling of the dam in extremely wet years, it is critical to minimize any risk of delay.

Therefore, the DFG is taking a cautionary approach with respect to permitting under programs the DFG administers and implements. In the event a project involving the use of rotenone is approved, and if the project would result in "take" of species listed as threatened or endangered under the California Endangered Species Act, the DFG may issue an incidental take permit to itself, even though it may not be required by law to do so. Similarly, if the project could modify the bed, channel or bank, or obstruct the natural flow, of a stream, river, or lake in a way that could substantially adversely affect existing fish and wildlife resources, the DFG may issue a lake or streambed alteration agreement to itself even though it may not be required by law to so. In addition, given that the approved project would be carried out by the DFG with cooperation from the DWR, the DFG would issue any such permit or agreement to itself together with the DWR, as a co-permittee.

The DFG is taking a similar cautionary approach with respect to FGC section 5937. If the DFG approves a project that involves closing the outlet valve, the DFG will request that the Fish and Game Commission adopt a short-term regulation pursuant to Section 219(a) of the FGC to temporarily supersede Section 5937 of the FGC for the specific and limited purpose of implementing the project. The Fish and Game Commission would be a responsible agency in proposing and adopting such regulation. As such, it could rely on the EIR/EIS in promulgating the regulation. The public would have an opportunity to comment on the regulations through the Fish and Game Commission's regulatory process. This cautionary approach is intended to minimize the risk of delay from legal challenges with respect to FGC section 5937, which would involve complex biological and technical issues that may not be resolved quickly in a court of law.

Other State, Federal, and local permits, approvals, and consultations that may be required for implementation of the project are identified in the following Table 1.6-1.

Table 1.6-1 Potential Permits, Approvals, and Consultations

Agency	Permits/Approvals/Consultations
RWQCB	NPDES permit and monitoring plan
DWR/SWRCB	DWR will petition SWRCB for a change in water rights permits
SHPO	Section 106 NHPA consultation and MOA for management of cultural resources
NAHC	Coordination and consultation on Section 106 NHPA consultation

Table 1.6-1 Potential Permits, Approvals, and Consultations

Agency	Permits/Approvals/Consultations
NSAQMD	Air quality monitoring during project implementation to estimate air pollutant concentrations; Authority to Construct Permit
DPR/Plumas County Ag Commission	Coordination with DPR and Plumas County Agriculture Commission regarding compliance with pesticide use laws and FIFRA
DTSC	Coordination with Safe Drinking Water and Toxic Enforcement Acts
OEHHA	Consultation on risk assessment, toxicology of active and inert ingredients of rotenone formulation used, and health and safety issues
DHS	Monitoring of wells; Section 116571 Health & Safety Code determination of "no permanent adverse impact" on drinking water quality.
CALTRANS	Encroachment Permit
USFWS	Section 7 ESA consultation for threatened and endangered species; Biological Assessment and Biological Opinion; Biological Evaluation and Management Indicator Species Report
NMFS	Section 7 ESA consultation for threatened and endangered species; Biological Assessment and Biological Opinion
USACE	Clean Water Act Section 404 Permit

1.7 Environmental Concerns

Below is a brief summary of the environmental concerns or areas of controversy by resource, including issues raised by agencies and the public that are addressed in this EIR/EIS. The resources are divided into three categories: physical environment, biological environment, and human environment.

1.7.1 Physical Environment

Surface Water Resources

The following concerns were associated with surface water resources and are addressed in Section 3 of this EIR/EIS:

- Bank erosion on Big Grizzly Creek downstream from Grizzly Valley Dam;
- Tributary incision (head-cutting) on all streams draining to Lake Davis;
- Structural instability of boat ramps; and
- Water quality parameters of turbidity, anoxic lake condition, dissolved oxygen, bacterial levels, reduced flows to Big Grizzly Creek, nutrients, and water temperature.

Groundwater Resources

The following concerns were associated with groundwater resources and are addressed in Section 4 of this EIR/EIS:

- Changes in water levels at private wells and at wells used for public domestic supply; and

- Changes in water quality at private wells and at wells used for public domestic supply.

Both concerns pertain to wells in close proximity to Lake Davis and to wells used for city of Portola residents.

Air Quality

The following concerns were associated with air quality and are addressed in Section 5 of this EIR/EIS:

- Odors from rotenone and decaying fish;
- Air pollution from equipment;
- Dust from general construction activities;
- Dust from powdered rotenone application; and
- Dust and particulates from exposed lake bottom and traffic on unpaved roads/surfaces.

Noise

The following concerns were associated with noise and are addressed in Section 6 of this EIR/EIS:

- Noise from transportation and staging areas;
- Noise from airboats;
- Noise generated at neutralization stations; and
- Helicopter noise for equipment transport.

1.7.2 Biological Environment

Aquatic Resources

The following concerns were associated with aquatic resources and are addressed in this Section 7.1 of this EIR/EIS:

- Potential for escape of pike to the Central Valley;
- Temporary loss of aquatic habitat in Lake Davis;
- Application of harmful chemicals into Lake Davis and its tributary streams and springs;
- The dewatering of Lake Davis, tributary streams and springs, and Big Grizzly Creek downstream of Lake Davis;
- Accidental spills of chemicals into the environment; and
- Change in flow regime to Big Grizzly Creek downstream of Lake Davis and the Middle Fork Feather River.

Wildlife Resources

The following concerns were associated with wildlife and are addressed in Section 7.2 of this EIR/EIS:

- Exposure of terrestrial wildlife to rotenone through direct contact, ingestion of treated water, or consumption of fish killed by rotenone;
- Impacts associated with the draw down of Lake Davis and the resulting reduction of aquatic and wetland habitats as used by terrestrial wildlife;
- Impacts to fish-eating terrestrial wildlife due to treatment of Lake Davis with rotenone and the temporary reduction of the fish community;
- Impacts to insectivorous terrestrial wildlife due to treatment of Lake Davis with rotenone and the temporary reduction of the aquatic invertebrate community; and
- Impacts to terrestrial wildlife due to disturbance associated with treatment activities at Lake Davis and its tributaries.

Botanical Resources

The following concerns were associated with plants and are addressed in Section 7.3 of this EIR/EIS:

- Loss of terrestrial plants;
- Loss of riparian plants;
- Loss of wetland plants;
- Loss of special-status plants; and
- Spread of noxious weeds.

1.7.3 Human Environment

Land Use and Land Management

The following concerns were associated with land use and land management and are addressed in Section 8 of this EIR/EIS:

- Forest management issues; and
- Grazing.

Aesthetic Resources

The following concerns were associated with aesthetic resources and are addressed in Section 9 of this EIR/EIS:

- Views of exposed lakebed; and
- Appearance of Big Grizzly Creek following neutralization.

Cultural Resources

The following concerns were associated with cultural resources and are addressed in Section 10 of this EIR/EIS:

- Ground disturbance from project activities affecting cultural resources;
- Erosion from reservoir drawdown affecting cultural resources below the water surface; and
- Looting of cultural resources exposed by reservoir drawdown.

Recreation Resources

The following concerns were associated with recreation resources and are addressed in Section 11 of this EIR/EIS:

- Displacement of recreation to Frenchman Lake; and
- Loss of tourism at Lake Davis.

Economic Resources

The following concerns were associated with economic resources and are addressed in Section 12 of this EIR/EIS:

- Local economic activity;
- Effect on local fiscal resources;
- Loss in economic value of recreation at Lake Davis;
- Drop in property values;
- Water supply cost and benefits; and
- Statewide economic effect due to reduced commercial and recreational fishing.

Public Services

The following concerns were associated with public services and are addressed in Section 13 of this EIR/EIS:

- Law enforcement;
- Fire protection and other emergency services;
- Domestic public water supply/water treatment; and
- Downstream water supply.

Human and Ecological Health Concerns

The following concerns were associated with human and ecological health concerns and are addressed in Section 14 of this EIR/EIS:

- Effect of use and transport of rotenone and its formulation constituents on human populations;
- Effect of spill of rotenone and its formulation constituents on human populations; and
- Effect of rotenone and its formulation constituents on fish and wildlife species.

Social Issues and Environmental Justice

The following concerns are discussed in Section 15 of this EIR/EIS:

- Demographics of human populations;
- Effects on minority populations; and
- Effects on low-income populations.

1.8 Related and Cumulative Analysis Programs and Projects

The programs and projects discussed below provide guidance on how invasive species, forest management, and other issues may be addressed locally and within the regional context. Other projects considered in the cumulative impacts analysis (for each resource section) are listed as well.

1.8.1 Relationship to CALFED Bay-Delta Program

The proposed Lake Davis Pike Eradication Project is a directed action under the CALFED Ecosystem Restoration Program (ERP). The project addresses the ERP eco-element related to Invasive Aquatic Organisms and ERP goals and objectives to prevent the establishment of additional non-native species and reduce the negative ecological and economic impact of established non-native species in the San Francisco Bay-Delta estuary. The CALFED ERP Plan identifies halting the unauthorized introduction and spread of potentially harmful non-native introduced species of fish, such as pike in Lake Davis, in the Bay-Delta and Central Valley as a strategic objective (CALFED 2000).

This EIR/EIS is part of the planning and feasibility phase of the CALFED directed action, the goal of which is to plan and prepare for a project to eradicate pike from Lake Davis and its tributaries thus protecting the Lake Davis trout fishery, preventing the downstream spread of pike and the chances of pike being relocated to other California waters.

If approved, implementation of the project would be funded by Proposition 50 funds appropriated for ERP activities under Chapter 7 of the California Water Code beginning with Subsection 79550(e) entitled CALFED Bay-Delta Ecosystem Restoration Program.

1.8.2 Relationship to the Plumas National Forest (PNF) Land and Resource Management Plan

The PNF Land and Resource Management Plan (LRMP) was completed in 1998. Since then it has been amended by the 2004 Sierra Nevada Framework Plan Amendment (SNFPA). The SNFPA Final Supplemental Environmental Impact Statement Record of Decision (ROD), which was signed in 2004, guides the Proposed Project and alternatives with regard to forest

management actions and other resource management actions, as they affect terrestrial and aquatic resources within the project area. The standards and guidelines and management prescriptions from the original 1988 Land and Resource Management Plan still apply to visual and recreation resources. The Proposed Project will be consistent with the broad management strategies such as the Aquatic Management Strategy and with the standards and guidelines for terrestrial and aquatic resources.

The PNF LRMP allocated all PNF lands in various management prescriptions. The Lake Davis Recreation Area is contained within the allocation titled "Recreation Area Prescription" described in Section 12 of this EIS/EIR. This prescription includes standards and guidelines for recreation, visual, and cultural resources.

1.8.3 Relationship to the Sierra Nevada Framework Plan Amendment (SNFPA)

The SNFPA ROD, signed in 2004, provides management goals and strategies for old forest ecosystems and associated species, and aquatic, riparian, and meadow ecosystems and associated species, both of which are relevant to the project area (Lake Davis) (http://www.fs.fed.us/r5/snfpa/final-seis/rod). Land allocations that apply to this project area include: California spotted owl protected activity centers (PACs), great gray owl PACs, northern goshawk PACs, wildland urban intermix, and riparian conservation areas (RCAs). The ROD also provides specific standards and guidelines for these land allocations, which are discussed in greater detail in the land use, terrestrial resources, and aquatic resource sections of this EIR/EIS.

The Lake Davis Pike Eradication Project is consistent with the SNFPA ROD in protecting and restoring aquatic and riparian ecosystems and providing for the viability of fish and wildlife species associated with these ecosystems. While the Proposed Project and alternatives would have short-term adverse impacts on aquatic resources at Lake Davis, that are not consistent with the SNFPA ROD, in the long term, the pike eradication effort would maintain aquatic species diversity, which is consistent with the goals of the SNFPA ROD.

1.8.4 DWR Pike Containment Structure at Lake Davis

In May 2006, the DWR approved a containment project it designed and proposed, known as the Northern Pike Containment System at the Outlet of Lake Davis on Big Grizzly Creek, to prevent any life stage of pike from moving downstream into Big Grizzly Creek, and into the Feather and Sacramento River system, in furtherance of the CALFED Bay-Delta Ecosystem Restoration Program goals. The DWR anticipates that the new containment system will be installed in the summer of 2006. After installation, discharge from the reservoir outlet would flow through six to eight "strainers" that would remove all material 1.0 millimeter or larger before discharging into Big Grizzly Creek, which flows into the Middle Fork Feather River. The 1.0 millimeter strainer openings will prevent undamaged pike eggs and larvae, in addition to any adult fish, from passing through the strainer. After passing through the strainer system, the water would be released into Big Grizzly Creek. The new containment system could operate 24 hours a day, year-round. If the strainers should cease operating, flow would be released through the emergency outflow pipe. A grater would be fitted onto the end

of the emergency outflow pipe. This DWR project is part of the No Project/No Action alternative; it is independent of and separate from the DFG's proposed project.

1.8.5 Beckwourth Ranger District Tall Whitetop Project

The USDA Forest Service, PNF, Beckwourth Ranger District is proposing to eradicate populations of the noxious weed tall whitetop (*Lepidium latifolium*), along the Middle Fork Feather River approximately one mile southwest of the town of Beckwourth. This eradication effort is an example of another chemical treatment that is proposed within the Lake Davis watershed and thus is considered for cumulative analysis.

Tall whitetop plants would be handpulled or mowed, depending on the size of the individual population, and then the resprouting tall whitetop plants would be chemically treated. Backpack sprayers would be used to spray contact herbicides on individual plants. The three herbicides that are being proposed for use are glyphosate (such as Rodeo™), 2,4-D (such as Weedar 64™), and chlorsulfuron (such as Telar). Populations would be monitored to determine how quickly populations decline and when tall whitetop is eradicated. Herbicide spraying of tall whitetop regrowth would occur in the project area for at least five consecutive years to ensure successful eradication.

Herbicide treatments would be designed to be as effective as possible in eradicating noxious weeds while protecting sensitive resources. By using different herbicides on uplands (areas upslope from the river) and floodplains (areas along the river), treatments would balance effectiveness and resource protection.

1.8.6 Other Projects for Cumulative Analysis

The past, present, and planned projects listed below and the projects discussed above are being considered in the cumulative impacts analysis of each resource section. These projects are primarily located in the project area and vicinity and are summarized in Table 1.8-1.

Table 1.8-1 Other Projects for Cumulative Analysis

Project	Year	Description	Location
Freeman Project	NA	To reduce hazardous fuels, improve forest health, improve bald eagle habitat, support the local communities, improve aspen stands, and provide access needed to meet other project objectives and reduce transportation system impacts.	West side of Lake Davis near Portola, California.
City of Portola well-drilling	NA	NA	City of Portola
DBW Ramp Extensions	NA	NA	Lake Davis
Grizzly Ranch Development Project	NA	380 residential homes on 1042 acres of land with an integrated golf course and 16.06 acres of jurisdictional wetlands.	Plumas County
DFPZ maintenance	2016	Clean-up	NA

Table 1.8-1 Other Projects for Cumulative Analysis

Project	Year	Description	Location
Cutoff Project	Planning could occur in 2007	Fuel treatments	Wildlife analysis area near Bagley Pass and Crocker Cutoff.
Mt. Ingalls Project	Planning could occur in 2007	Fuel treatments	Wildlife analysis area near Bagley Pass and Crocker Cutoff.
City of Portola Water Treatment Plant	2007	The plant will be a membrane filtering system	City of Portola at closed treatment plant site
Beckwourth Ranger District Tall Whitetop Project	Summer 2007	Eradication of populations of the noxious weed tall whitetop (*Lepidium latifolium*),	Along the Middle Fork Feather River, approximately one mile southwest of Beckwourth
Grazing Allotments	On-going	Humbug, Grizzly Valley, Grizzly Community, and Lake Davis	Humbug, Grizzly Valley, Grizzly Community, and Lake Davis
DWR Containment Project MND/IS	2006	Construction of a containment system that will prevent pike, of any life stage, from moving downstream into Big Grizzly Creek, and into the Feather and Sacramento River system.	Downstream toe of Grizzly Valley Dam (Lake Davis)
FS Road 24N10 Chip Seal Project	2006	Resurfacing and widening of road to reduce airborne dust	Lake Davis
Long Valley KV	2005-2006	Clean-up	NA
Westside Lake Davis Watershed Restoration Project	2005-2006	Restore 50 headcuts and gullies to improve channel stability and reduce sedimentation within 20 stream channels	West side of Lake Davis
Humbug DFPZ	2003-2006	Clean-up	NA
Little Summit Lake Post and Pole Permits	1980-2006	Pole cutting	NA
Knuston-Vandenberg Cultural Projects	1980-2006	Site prep, planting, pre-commercial thinning associated with follow-up silviculture treatments, post harvest from timber sale and salvage sale projects	NA
Public Fuelwood Permits	1980-2006	Lodgepole pine thinning around Lake Davis	Lake Davis
Recreation Facilities Maintenance and Improvements	1980-2006	Facility improvements	West side of Lake Davis
Hazard Tree Removal	2005	Clean-up	NA

Table 1.8-1 Other Projects for Cumulative Analysis

Project	Year	Description	Location
Smitty Roadside Hazard Salvage	2005	Sanitation	NA
Deek Roadside Hazard Salvage	2004	Sanitation	NA
Humbug DFPZ	2004	Thinning, aspen enhancement	NA
Public Fuelwood Permits	2001	Post harvest debris clean up, stand improvement, insect/disease problems and habitat enhancement	Camp 5 Area
Watershed Restoration Projects	1980-2000	Livestock enclosures, bank stabilization, willow planting, road closures and reseeding of disturbed areas	Freeman and Cow Creeks
Pike Eradication by DFG	1997	Rotenone treatment in Lake Davis	Lake Davis

1.9 Document Structure/Scope of Analysis

1.9.1 Document Structure

Following Section 2, Project Alternatives, Sections 3 through 15 present detailed descriptions and potential effects of the No Project/No Action alternative, the Proposed Project and the other alternatives on the various resources. Other CEQA and NEPA requirements are addressed in the appropriate sections. The EIR/EIS is structured in a way that each required portion of the document and resource are discussed in separate sections. For example, the environmental setting and the analysis of impacts for each resource, such as surface water resources, are combined into one section. A summary of the impacts to each resource is provided at the end of each resource section.

1.9.2 Scope of Analysis

The resources investigated in depth are those that were determined to be potentially affected by the Proposed Project and project alternatives. Resource discussions were also included to address public comments. These resource sections 3 through 15 are as follows:

- Surface Water Resources;
- Groundwater Resources;
- Air Quality;
- Noise;
- Biological Resources;
- Land Use and Land Management;
- Aesthetic Resources;

- Cultural Resources;
- Recreation Resources;
- Economic Resources;
- Public Services;
- Human and Ecological Health Concerns; and
- Social Issues and Environmental Justice.

For purposes of CEQA environmental effects, economic and social changes resulting from a project shall not be treated as significant effects on the environment. Economic or social changes may be used, however, to determine that a physical change shall be regarded as a significant effect on the environment. If the physical change causes adverse economic or social effects on people, those adverse effects may be used as a factor in determining whether the physical change is significant (CCR, tit. 14, §15064(e)).

The remaining CEQA and NEPA requirements are addressed in Section 16, Other Required Disclosures. The Mitigation Monitoring and Reporting Program will be prepared for the Final EIR/EIS.

Other resources were considered in the 2005 *Project Description and Initial Study for the Lake Davis Pike Eradication Project* (Appendix B), but the Proposed Project and alternatives were determined to have no impacts or less than significant impacts and, therefore, further analysis of these resources was not necessary. (See Appendix B for a more detailed discussion of these resource areas and the impacts that were determined not to be significant.) The resources not considered thereafter in the EIR/EIS, or those partially considered (and how they are considered), include:

- **Agriculture Resources.** The project area is comprised solely of land owned by the U.S. Forest Service, and there is currently no land within the project area that is zoned or used for agriculture. Grazing is associated with agriculture uses, and it is discussed in Section 8, Land Use and Land Management.
- **Geology and Soils.** Geology is discussed in Section 4, Groundwater Resources, Subsection 4.1 Geology and Hydrogeology. Soil erosion is discussed throughout Section 3, Surface Water Resources.
- **Hazards and Hazardous Materials.** Human and ecological health factors associated with the project, specifically with the application of the Rotenone, are discussed in Section 14, Human and Ecological Health Effects.
- **Mineral Resources.** There are no known mineral resources in the project area and, therefore, no loss of availability of mineral resources would occur.
- **Population and Housing.** The project would not add new housing or increase the resident population within the project area; and, therefore, population and housing is not expected to be affected by the project. The impact of the project on public services, including Portola's proposed water treatment plant, is addressed in Section 13, Public Services.

- **Transportation and Traffic.** While the project may result in increased traffic levels in the short term, they are not expected to be significant over existing traffic levels. This increase would likely be offset by the Forest Closure Plans in place for the Proposed Project and project alternatives.
- **Utilities and Service Systems.** The project is not expected to affect the utilities, including electricity, cable, water, and wastewater, in the area. Water supply concerns are addressed in Section 13, Public Services.

1.9.3 Impact Significance Terminology

For each resource evaluated, the key environmental issues and criteria for determining whether an adverse impact is significant under CEQA, are discussed first. Note that the USFS does not address significance in the findings of its EIS documents, so significance language is primarily a CEQA requirement. A "significant impact" is defined as:

> "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant." (CEQA Guidelines §15382)

The environmental impact analysis section for each resource defines the criteria used to judge whether an impact is significant. These criteria include the "Mandatory Findings of Significance" set forth in CEQA Guidelines §15065, as well as relevant criteria set forth in the Initial Study checklist (CEQA Guidelines, Appendix G), agency regulatory standards, or other criteria relevant to the specific project. The significance terminology for adverse impacts should only be used with the CEQA conclusion of impact. The term "beneficial" is a NEPA term, and can be used to mean a beneficial impact if applicable. Otherwise, the conclusions for impacts or effects under NEPA is "adverse" or "no" impact.

In describing the significance of adverse impacts or a beneficial effect, the following categories of significance are applied, based on the best professional judgment of the EIR/EIS preparers:

- **Significant and Unavoidable**: An impact that cannot be avoided or reduced to below the threshold level, given reasonably available and feasible mitigation measures. Such an impact is irreversible. (It requires a Statement of Overriding Considerations by the DFG, if the project is to be approved.)
- **Significant but Mitigable:** An impact that can be reduced to below the threshold level (i.e., to less than significant) given reasonably available and feasible mitigation measures. The statement is made that the particular impact is significant, but with the application of the specific mitigation measure, the impact can be reduced to less than significant. (Such an impact requires findings to be made by the DFG.)
- **Less than Significant:** An impact that may be adverse but does not exceed the threshold levels and does not require mitigation measures. However, mitigation measures that

could further lessen the environmental effect may be suggested if such measures are readily available and easily achievable. The appropriate use is: the impact is less than significant or there is a "less than significant impact."

- **No Impact:** Where an impact is neutral or is clearly deemed "no effect," the preparer uses this term.
- **Beneficial:** This is a NEPA term for an effect that would have a positive impact on the environment, such as reducing an existing environmental problem or minimizing potential hazards to animals and/or humans.

Impacts that "may be significant" or "potentially significant," given some level of uncertainty are treated as "significant." Furthermore, uncertainty is also expressed with "could" rather than "would" as appropriate. Uncertainty is usually attributable to the limited availability of data or limitations in the application of mathematical models. Nevertheless, this EIR/EIS takes a conservative approach under these uncertain circumstances, and the impact is identified as significant under CEQA.

Required mitigation measures for one resource may have environmental impacts on other resources. Where a mitigation measure could have a significant environmental impact, this impact is discussed as a residual effect. The two Forest Closures are part of the project alternatives and are not mitigation per se.